

2009

Role of Leisure in Stroke Rehabilitation

Alicia Van Nice
Pacific University

Follow this and additional works at: <http://commons.pacificu.edu/otpf>



Part of the [Occupational Therapy Commons](http://commons.pacificu.edu/otpf)

Notice to Readers

This work is not a peer-reviewed publication. Though the author of this work has provided a summary of the best available evidence at the time of writing, readers are encouraged to use this CAT as a starting point for further reading and investigation, rather than as a definitive answer to the clinical question posed or as a substitute for clinical decision-making.

Select copyrighted material from published articles may be included in this CAT for the purpose of providing a context for an informed critical appraisal. Readers are strongly encouraged to seek out the published articles included here for additional information and to further examine the findings in their original presentation. Copyrighted materials from articles included in this CAT should not be re-used without the copyright holder's permission.

Recommended Citation

Van Nice, Alicia, "Role of Leisure in Stroke Rehabilitation" (2009). *Physical Function CATs*. Paper 3.
<http://commons.pacificu.edu/otpf/3>

This is brought to you for free and open access by the OT Critically Appraised Topics at CommonKnowledge. It has been accepted for inclusion in Physical Function CATs by an authorized administrator of CommonKnowledge. For more information, please contact CommonKnowledge@pacificu.edu.

Role of Leisure in Stroke Rehabilitation

Disciplines

Occupational Therapy | Rehabilitation and Therapy

Rights



This work is licensed under a [Creative Commons Attribution 3.0 License](https://creativecommons.org/licenses/by/3.0/).

Role of Leisure in Stroke Rehabilitation

Prepared by; Alicia Van Nice (avannice@pacificu.edu)



Date: November 30, 2009

CLINICAL SCENARIO:

Data from The American Heart Association and the U.S. Centers for Disease Control and Prevention Stroke Statistics-2009 Update indicated that stroke accounted for about 1 of every 18 deaths in the United States. Every year in the United States, about 795 000 people experience a new or recurrent stroke. About 610, 000 of these are first attacks, and 185,000 are recurrent attacks. On average, every 40 seconds someone in the United States has a stroke (American Heart Association, 2009). Common limitations post-stroke include motor and sensory function loss, impaired communication and cognitive skills, visual perceptual problems, and emotional changes. These challenges prevent stroke survivors from engaging in their occupational roles and routines at their previous functional status, therefore putting them at a high risk for developing depression. According to the *Occupational Therapy Practice Framework: Domain and Process 2nd Edition* (American Occupational Therapy Association [AOTA], 2008) occupational therapy practitioners consider the many types of occupations their clients may engage in. The broad range of activities or occupations are sorted into categories called “areas of occupation” –activities of daily living, instrumental activities of daily living, rest and sleep, education, work, play, leisure and social participation. During stroke rehabilitation, occupational therapy is often aimed at restoring function in the individual at the most basic level, such as activities of daily living related to self care, due to the severity of limitations experienced. Many stroke survivors, as much as 10 years post stroke, report experiencing reduced activity, occupational loss and having to rely on others in order to engage in social and leisure activities (Amarshi, Artero, & Reid, 2006).

It is important in rehabilitation for occupational therapists to address occupational loss related to leisure both earlier and over a longer duration in recovery as to contribute to the quality of life experienced by stroke survivors. By collaborating with clients to minimize barriers and improving the factors that contribute to increased participation, such as focusing on environmental and activity modifications, compensatory techniques for previous held leisure activities, and/or exploring new meaningful leisure activities. Through the process of addressing leisure in occupational therapy rehabilitative services, the person will regain the ability to resume leisure and social roles that are core to achieving increased life satisfaction post stroke.

FOCUSSED CLINICAL QUESTION:

What is the evidence for the role of leisure and what is its effect on improved quality of life in stroke rehabilitation?

Summary Key Findings:

Of the three Level I-III studies that examined independence in BADL and IADL, role participation, activity level, depressive symptoms and life satisfaction changes in persons following stroke, two (Hartman-Maeir, Soroker, Ring, H., Avni, & Katz, 2007; and McKenna, Liddle, Brown, Lee, & Gustafsson, 2009) compared results to non-stroke group of healthy older adults and one (Derosiers, Noreau, Rochette, Carbonneau, Fontaine, Viscogliosi, C., et al., 2007) examined through a multidisciplinary treatment approach that included occupational therapy, the effect of a home leisure education program with an emphasis on empowerment to measure outcomes related to changes in leisure participation and satisfaction related to participation.

- In a Level I study (Derosiers, Noreau, Rochette, Carbonneau, Fontaine, Viscogliosi, et al., 2007) a multidisciplinary team (one occupational therapist and one recreational therapist) led a home/community based leisure education program offered once a week (8-12 weeks) for approximately 60 minutes, which resulted in improving participation in leisure activities, improving satisfaction with leisure and reducing depression in people up to five years post-stroke as compared to a control group who were visited by the team in their homes and discussed topics unrelated to leisure.

Some key aspects of the program were:

1. Leisure education program focused on empowerment and included three domains:
 - (1) Leisure awareness: defined the perception and knowledge people have about their leisure activities and how important they consider them.
 - (2) Self-awareness: focused on person's perception of themselves, and their values, attitudes, and capacities in regard to leisure activities.
 - (3) Competency development: encompassed the perceived and real constraints identified by the person and the knowledge of alternatives to achieve autonomy in leisure activities.
2. The experimental leisure group included leisure education both in their home and in the community.

- In a Level II study (Hartman-Maeir, Soroker, Ring, Avni, & Katz, 2007) data encompassing the outcome measures of daily functioning in BADL, IADL, work and leisure, satisfaction and emotional status was obtained by an occupational therapist on participants one-year post-stroke who had been living independently in the community prior and were compared to a cohort group from a separate study that included a similar sample size of older Israeli adults without stroke to show the effects of aging as compared to the negative effects of a stroke on activity level.

Some key findings were:

1. The decline in activity and participation after stroke in the sample of relatively young subjects (mean age: 57.7 years) was found to be significantly more prominent than the decline that occurred with age in a sample of healthy elderly Israeli individuals that had previously been studied, indicating the severe, long lasting impact of stroke.
2. Participation was found to be a significant predictor of life satisfaction scores. The

significance of leisure participation in the findings was emphasized as a contributing factor in preventing health decline and isolation. These findings underscore the importance of broad areas of functioning, beyond BADL, to enable participation in personally meaningful activities in order to improve life satisfaction.

- In a Level II study (McKenna, Liddle, J., Brown, Lee, & Gustafsson, 2009) data encompassing time use, role participation, independence in BADL and IADL, life satisfaction and depressive symptoms in older adults (<65 years), who were one to three years post-stroke, and who had been living in the community prior was obtained by two senior occupational therapy students under the supervision of two experienced occupational. Results were compared cross-sectionally to a larger sample size of Austrian older adults without stroke to show the effects of aging as compared to the effects of stroke.

Some key findings were:

1. The most common and valued roles for both samples were family member, friend, and home maintainer, which may be a reflection of the common values held within this age group.
2. In this study, both samples reported engaging in fewer roles than they did in the past, however, participants with stroke had relinquished more roles and were currently engaged in fewer roles than the sample without stroke. The participants in this study were less likely to have the current roles of hobbyist/amateur participant in organizations, volunteer, caregiver, or student because these are all roles that require a high level of community integration.
3. Results of this study also support the finding that the number of currently held roles influences life satisfaction.

Contribution of Qualitative Findings:

Effects on leisure and social participation post-stroke

Stroke survivors up to 10 years post-stroke, identified experiencing reduced activity, occupational loss, and having to rely on other in order to engage in social and leisure activities following their stroke, therefore revealing the theme “it’s a different life after the stroke” (Amarshi, Artero, & Reid, 2006).

Meaning attributed to leisure activities

Some of the participants spoke about how engaging in leisure and social activities provided purpose and meaning to their lives (Amarshi, Artero, & Reid, 2006). Purposeful leisure activities were named as an important source of coping, but were also described as a source of stress when there was found to be a conflict between a person’s desires for participation and abilities. Therefore based on these findings, leisure should be seen as an important tool in the rehabilitation and reintegration process (Carlson, Moller, & Blomstrand, 2009).

Barriers to social and leisure participation following stroke

A core category that emerged from interviews was 'striving to manage an everyday life of uncertainty' because there was uncertainty about symptoms and the new life, lack of preparation for living in the community and having to live within a social context where there is a lack of knowledge about invisible dysfunctions, and the overall uncertainty

concerning recovery (Carlson, Moller, & Blomstrand, 2009). Also, respondents often were considered to have recovered one-year post-stroke and thus faced expectations that they could not live up to.

Several factors within the person and the environment were identified as barriers to participation in social and leisure activities following a stroke in a study done by Amarshi, Artero, & Reid (2006). Many persons even as much as 10 years post-stroke continued to experience physical limitations, such that the impact of their decreased arm and leg function and increased fatigue limited their ability to engage in social and leisure activities of their choice. As a result of many of the physical impairments caused by their stroke, many participants commented on being afraid to re-engage in the leisure activities they once enjoyed. Some participants spoke of cognitive issues resulting from stroke that made it difficult to participate. Other environmental barriers that limited participation included transportation issues, the cost of participating in activities and the fear of participating in social and leisure activities.

What is needed to increase participation in leisure and social participation following stroke

In a study done by Amarshi, Artero, & Reid (2006), several factors were attributed to having aided this process of reengagement in leisure and social activities post-stroke. All stroke survivors commented on how family and friends played an important role in their return to social and leisure activity. The majority of participants also spoke about the importance of being able to fit in with others, such that they joined stroke survivor community groups because they often felt out of place when they tried to access social and leisure activities with members of the general public. The majority of stroke survivors commented on their internal determination to succeed in activity, despite having experienced many barriers to their social and leisure participation following a stroke. All participants spoke about how they initiated new social and/or leisure activities following their stroke. Some stroke survivors initiated new activities to replace previous activities that they were no longer able to engage in following their stroke. Some of the stroke survivors who were interviewed spoke about adapting their pre-stroke leisure activities.

Some other needs identified by stroke survivors that would help increase reengagement in leisure and social activities included specific accommodations especially in regards to transportation and financial costs when attending the activities of their choice outside the home. This raises the need for organizational support following stroke in order to facilitate stroke survivors to return to their social and leisure activities in their community.

CLINICAL BOTTOM LINE:

In occupational therapy, the underlying purpose of therapy in stroke rehabilitation is to help clients achieve an optimal level of functioning that is as close to their prior level of functioning as possible. Due to the acuity of stroke injury, much of the initial rehabilitative intent of therapy is focused on basic activities of daily living (BADL) and instrumental activities of daily living (IADL). The occupation of leisure is often not addressed to the extent ADL and IADL functioning is addressed, and possibly due to the limited time spent in rehabilitation it may never be addressed at all. Occupational therapy must establish

leisure education that addresses the limitations stroke imposes on leisure participation throughout the rehabilitative process, such that the clients have a regained sense of purpose and meaning associated with leisure participation because leisure participation has been identified to contribute largely to well-being and life satisfaction post-stroke.

Limitation of this CAT: This critically appraised paper (or topic) has /has not been peer-reviewed by one other independent person/a lecturer and writer is not an expert on the subject.

SEARCH STRATEGY:

Terms used to guide Search Strategy:

- **Patient/Client Group:** Stroke rehabilitation patients
- **Intervention (or Assessment):** Education and/or training on modifications and/or compensatory techniques to engage in previous leisure activities or explore new ones
- **Comparison:** Stroke patients with therapy encompassing leisure versus a control group without leisure
- **Outcome(s):** Those with leisure incorporated into therapy had higher reported quality of life

Databases and sites searched	Search Terms	Limits used
<ul style="list-style-type: none"> • Medline • CINAHL • OT Search 	<ul style="list-style-type: none"> • Stroke and leisure • Quality of life and stroke rehab • Stroke and depression • Stroke, quality of life, and leisure 	<ul style="list-style-type: none"> • Peer reviewed • Published after 2000

INCLUSION and EXCLUSION CRITERIA

- Inclusion:
 - Published between 2000 and 2009
 - Meta-analysis or systematic review
 - All levels of evidence were included to capture best evidence available on the subject
 - Participants who were persons having survived stroke
 - Participants were adults
 - Written in English
 - Relevant to OT practice
- Exclusion:

- Published before 2000
- Participants other than stroke survivors
- Written in another language

RESULTS OF SEARCH

(based on Levels of Evidence, Centre for Evidence Based Medicine, 1998)

Table 1: Summary of Study Designs of Articles retrieved

Study Design/ Methodology of Articles Retrieved	Level	Number Located	Author (Year)
Systematic reviews, meta-analysis, randomized controlled trials	I	1	Derosiers, Noreau, Rochette, Carbonneau, Fontaine, Viscogliosi, et al. (2007).
Two groups, nonrandomized studies (e.g cohort, case-control)	II	2	<ul style="list-style-type: none"> • Hartman-Maeir, Soroker, Ring, Avni, & Katz, (2007). • McKenna, Liddle, Brown, Lee, & Gustafsson, (2009).
One group, nonrandomized studies (e.g. before and after, pretest and post-test)	III	0	
Descriptive studies that include analysis of outcomes (e.g. single-subject design, case series)	IV	0	
Case reports and expert opinion, which include narrative literature reviews and consensus statements	V	0	
Qualitative/ Interviews	NA	2	<ul style="list-style-type: none"> • Amarshi, Artero, & Reid, (2006). • Carlson, Moller, & Blomstrand, (2009).
Total		= 5	

BEST EVIDENCE

The following study/paper was identified as the ‘best’ evidence and selected for critical appraisal. Reasons for selecting this study were:

- Level 1 Randomized control trial, highest level found
- Largest sample size of 62 participants
- Significantly statistical findings supporting research question
- Significant OT practice implications

SUMMARY OF BEST EVIDENCE

Table 2: Description and appraisal of Effect of a home leisure education program after stroke: A randomized control trial, by Derosiers, Noreau, Rochette, Carbonneau, Fontaine, Viscogliosi, et al., 2007.

Aim/Objective of the Study: Study aim to evaluate the effect of a home leisure education program with an emphasis on empowerment for people with stroke.

Study Design: The study was a randomized controlled trial with blinded assessment of outcomes and was appropriate for the study question. Experimental participants received the leisure education program at home. Control participants were visited at home for a similar number of visits. Participants were evaluated prior to randomization (baseline) and after the program. An occupational therapist not involved in the program and blinded to group assignment, was responsible for administering the outcome measures. After baseline assessment, participants were randomly assigned to the control and experimental groups, using a computer-generated program with blocking and stratification based on functional independence and time since stroke.

Setting: Study took place in participants' homes and in the community.

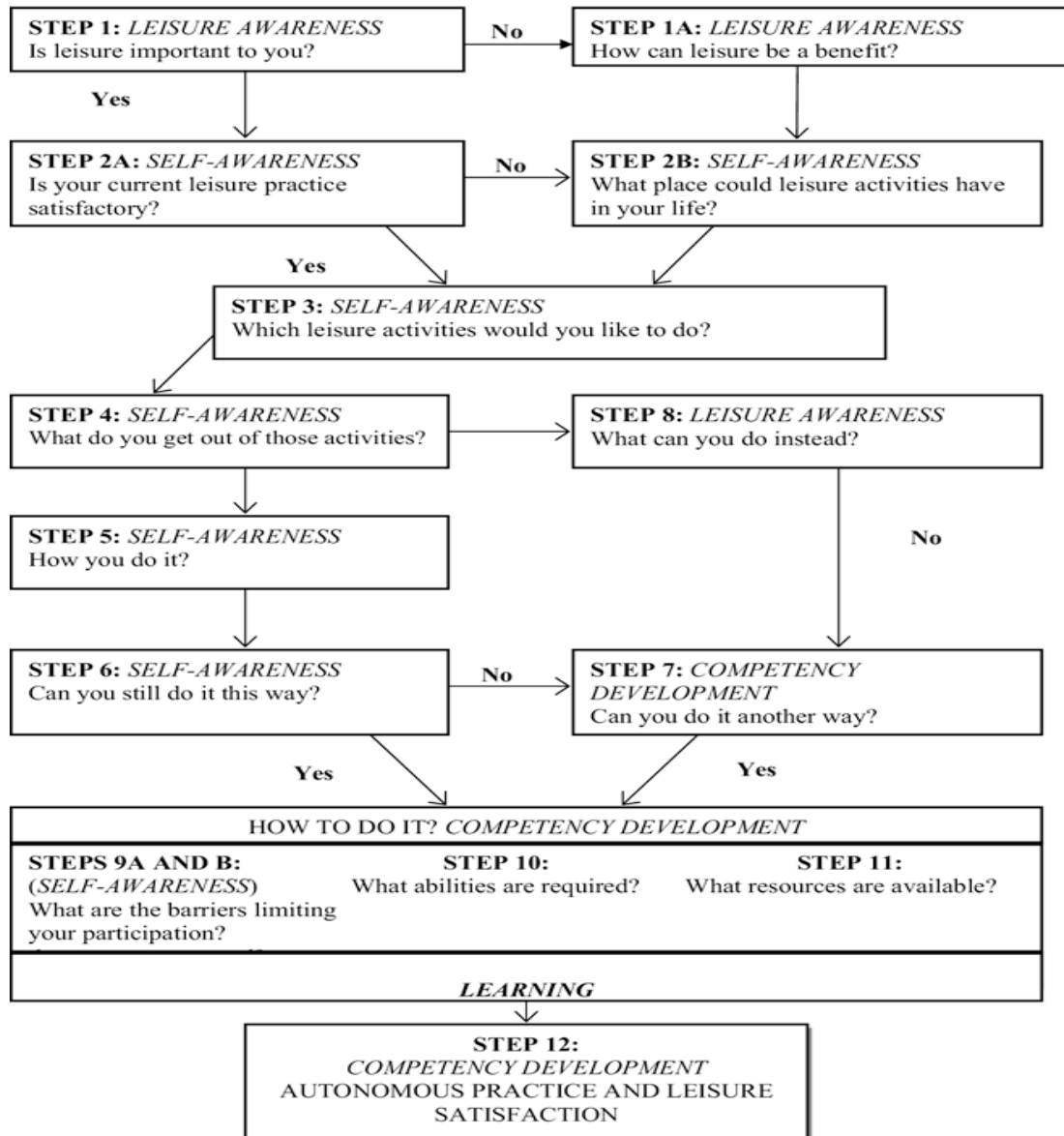
Participants: 62 people entered the trial carried out in 2002 and 2003. They were recruited after a review of medical charts of people who were previously admitted with stroke to a rehabilitation acute care facility up to 5 years before the study. 33 people were randomly assigned to the experimental group and 29 people were randomly assigned to the control group. Besides having had a stroke, inclusion criteria included living in the community and self-report of some problems with leisure participation or satisfaction. People were excluded with cognitive problems identified as less than a 5 percentile on the Modified Mini-Mental State Examination, language comprehension problems, and/or severe comorbidities.

Intervention Investigated Participants were evaluated prior to randomization (baseline/pre) and after the program (post). Two personnel provided experimental intervention: an occupational therapist and a recreational therapist. The recreational therapist was responsible for the intervention whereas the occupational therapist acted as a consultant. The OT's primary role was to facilitate leisure participation, mainly by adapting the material of the environment. The therapists met the participants once a week (8-12 weeks), theoretically for 60 minutes, but the duration of the leisure group was slightly longer because the leisure activities took place both at home and in the community, whereas the control intervention was carried out at home. Leisure education program was divided into 3 components: (1) leisure awareness, (2) self-awareness, and (3) competency development. Leisure awareness is defined as the perception and knowledge people have of their leisure activities and how important they consider them. Self-awareness relates to person's perception of themselves, and their values, attitudes, and capacities in regard to leisure activities. Competency development encompasses the perceived and real constraints identified by the person and the knowledge of alternatives to achieve autonomy in leisure activities. Leisure program was divided into 12 steps (fig 1).

Experimental: Experimental participants received a leisure education program at home and in the community.

Control: Control participants were visited in their home, but the topics discussed were unrelated to leisure.

Fig 1. Summary of Leisure Program



Outcome Measures

An occupational therapist not involved in the program and blinded to group assignment, was responsible for administering the outcome measures.

- Leisure participation: estimated in terms of duration (min per day) for each leisure activity and recorded with the time budget technique, which determines the person's daily leisure activities on a weekly basis via a logbook. Activities were classified as passive and active leisure. The passive leisure score referred to activities that were done at home and required no active involvement. The active leisure score included participation in social activities, entertainment, activities outside the home, physical activities, spirituality, games arts, crafts and ADLs for pleasure. The number of different activities performed was calculated.

- Satisfaction related to leisure participation: estimated with The Leisure Satisfaction Scale, which measures the degree to which people's needs are met through their leisure activities (24 items scored from 1 to 5; higher scores indicates greater satisfaction). Content validity was verified with 160 professionals working in the leisure field. The reliability study (internal consistency) showed a Cronbach $\alpha=.93$, with a range of .85 to .92 for the subcategories. Also the Individualized Leisure Profile was used to measure satisfaction with needs and expectations in regards to leisure and the use of spare time. Two sections were used: (1) needs and expectations in regards to leisure (14 items; Cronbach $\alpha=.92$) and (2) use of spare time (10 items; $\alpha=.90$). Each item is scored on a scale from 0 to 3, a higher score indicating a higher level of satisfaction.
- Well-being: evaluated by the General Well-Being Schedule, which measure perceived well-being and symptoms of distress. The 18 items of this questionnaire measure 6 dimensions: anxiety, depression, positive well-being, emotional control, vitality, and general health. A 6-level (0 to 5) ordinal scale that varies with each question is used to answer the first 14 items. For the last 4 items, a visual analog scale is used. A higher score (maximum, 110) indicates a higher level of well-being. Three categories of score have been defined: severe distress (0-60); moderate distress (61-72); and positive well-being (>72). This tool has good test-retest reliability (intraclass correlation coefficient, .82).
- Depressive symptoms: estimated with the Center for Epidemiological Studies Depression Scale (CES-D). This questionnaire is comprised of 20 items rated from 0 to 3, with a lower score suggesting a lower level of depressive symptoms. This tool has been found to be reliable (intraclass: $r=.96$) and valid as a screening tool for assessing depression in people with stroke.
- Health-related Quality of Life (HRQOL): evaluated by the Stroke-Adapted Sickness Impact Profile (SA-SIP30). This test is comprised of 30 items divided into psychosocial and physical components. One point is given when an item is checked. Higher scores indicate poorer health. The SA-SIP30 is reliable (internal consistency of the total score, .85) and responsive to change. Construct and convergent validity have been demonstrated by the comparison with the original SIP developed by Bergner et al.

Main Findings: Statistical analysis used in comparing the groups at baseline used the *t* tests for independent samples (continuous variables) and chi-square tests (categorical variables).

Differences between pre-test and post-test (intragroup) were compared using the paired *t* test.

Between group differences were examined by calculating and comparing the mean change scores for each dependent variable.

- Leisure participation: the difference between groups using a paired *t* test was found to be significant for duration of active leisure activities as well as for the number of activities, as indicated by the 95% confidence intervals. There was no difference between the groups in the duration of passive leisure activities.
- Satisfaction related to leisure participation: there was no difference between the groups in the duration of passive leisure activities. Satisfaction with leisure increased only in the experimental group and the differences between the groups were statistically significant, except for satisfaction with the use of spare time.
- Well-being: well-being of the experimental group increased during the program but the difference between groups was not significant.

- Depressive symptoms: only the experimental group significantly reduced their depressive symptoms after the program and statistical testing between groups was significant (95% CI, -12.5 to -1.9; $P=.01$).
- Health-related Quality of Life (HRQOL): both groups statistically improved their HRQOL but no difference was found between them all.

Table 3: Comparison of Groups on the Leisure Related and Primary Outcome Measures

Outcomes	Experimental Group			Control Group			Group Comparisons	
	t1	t2	t1-t2	t1	t2	t1-t2	Mean Difference	P
Participation in leisure								
Active activities (min)	38.6+-24.1	29.8+-18.6	8.8 (-1.4 to 18.9)	45.3+-29.5	42.8+-30.4	2.5 (6.4 to 11.5)	-6.2 (-19.4 to 6.9)	.35
Passive activities (min)	41.7+-17.1	58.9+-20.4	-17.2 (-25.6 to -8.9)	41.7+-17.7	44.9+-24.0	-3.2 (-10.6 to 4.2)	14.0 (3.2 to 24.9)	.01
No. of different activities	8.3+-2.9	10.6+-3.3	-2.2 (-3.7 to -0.8)	8.4+-3.2	7.8+-3.1	0.7 (-.54 to 1.9)	2.9 (1.1 to 4.8)	.002
Satisfaction with leisure								
<i>Leisure Satisfaction Scale (24_120)</i>	75.6+-14.9	88.5+-17.2	-12.9 (-+18.8 to -7.0)	79.1+-17.7	80.2+-19.3	-1.1 (-6.1 to 3.9)	11.9 (4.2 to 19.5)	.003
<i>Individualized Leisure Profile</i>								
Satisfaction of leisure needs and expectations (/42)	14.8+-6.4	24.8+-6.9	10.0 (-13.4 to -6.6)	-20.2+-9.2	23.2+-12.0	-3.1 (-7.9 to 1.9)	6.9 (1.3 to 12.6)	.02
Satisfaction with use of spare time (/30)	16.2+-6.2	19.6+-4.7	-3.4 (-6.4 to -3.4)*	17.6+-6.6	18.4+-6.9	-0.8 (-4.0 to 2.4)	2.6 (-1.6 to 6.9)	.22
Well-being								
<i>General Well-Being Schedule (/110)</i>	65.8+-18.2	72.4+-16.5	-6.6 (-12.6 to -.71)*	69.0+-15.4	73.4+-16.4	-4.4 (-9.8 to .90)	2.2 (-5.6 to 10.0)	.57
Depressive symptoms								
<i>CES-D (/60)</i>	18.5+-12.1	9.9+-6.9	8.7 (4.3 to 13.0)	16.3+-9.0	14.8+-7.6	1.5 (-1.8 to 4.8)	-7.2 (-12.5 to -1.9)	.01
HRQOL								
<i>SA-SIP30 (/30)</i>	8.1+-3.6	6.9+-3.4	1.2 (.02 to 2.4)*	11.6+-4.6	10.1+-3.9	1.4 (0.4 to 2.5)	0.2 (-1.3 to 1.8)	.76

NOTE. Values are mean _ SD or 95% CI.

Abbreviation: CI, confidence interval.

* $P_{.05}$; $P_{.01}$ associated with paired t test.

Original Authors' Conclusions

Authors found that an empowerment-focused home leisure education program had a positive effect on leisure satisfaction and participation, with benefits for mood in persons with stroke living in the community (pp 1099). They conclude that the ultimate purpose of stroke rehabilitation should aim on optimizing resumption of premorbid activities.

CRITICAL APPRAISAL

Validity

The experimental RCT design, random assignment into experimental and control groups, blinded assessment of outcome measures, and the use of valid and reliable primary measures minimized potential biases and ensured validity. The placebo intervention ensured that all participants received a similar degree of attention over the course of the study and therefore increased benefits of the experimental group can be more assuredly attributed to the leisure education program. Dropout bias is possible because those who stopped participating in the experimental group had lower functional independence than those who did not. The study was evaluated using the PEDro scale to measure the validity of the study's findings. The study met 10 of the 11 criteria and was found to be both internally and externally valid, which promotes the usefulness and generalizability of the study's results.

Interpretation of Results

After the leisure education program, persons in the experimental group increased their participation in active leisure activities and were more satisfied with their leisure activities. The significant increase in time involved in active leisure activities in the experimental group tends to enhance their leisure participation. However, it can be argued that the mean difference of 14 minutes a day found between groups is modest and not clinically significant, particularly if the lower 95% CI (3.2min) is considered. The magnitude of the improvement in leisure participation for the experimental group is high and appeared to be clinically important, although the lower 95% CI is only 2 points. Based on the threshold score of 16 for depression in the CES-D, both groups were considered depressed at t1 but not at t2, especially the experimental group, who considerably reduced (nearly 50%) their depressive symptoms. No statistically or clinically significant differences were found between the groups' well-being (2 points on a scale of 110) or HRQOL (0.2 points on a scale of 30). The concept of well-being is to some extent related to depression, but well-being is also associated with other components such as vitality and general health, which could have remained stable through duration of study. This was found to be consistent with HRQOL scores, which were for the most part stable (small difference, even though statistically significant) over time for both groups. Also, even though no significant difference between the groups was found in regard to well-being, at pretest both groups were classified in the moderate distress category, whereas as post-test they had moved into the positive well-being category (>72). The results indicate the effectiveness of the leisure education program for improving participation in leisure activities, improving satisfaction with leisure and reducing depression in people with stroke.

Summary/Conclusion:

The results indicate the effectiveness of the leisure education program for improving participation in leisure activities, improving satisfaction with leisure and reducing depression in people with stroke. The main finding of the study was that some dimensions of leisure improved after the program, with a concurrent impact on depressive symptoms. After the leisure education, persons in the experimental group increased their participation in active leisure activities and were more satisfied with their leisure activities. The significant increase in time involved in active leisure activities in the experimental group tends to support the view that the leisure program stimulated

people to enhance their leisure participation. After the program the experimental group presented fewer depressive symptoms.

Table 4: Characteristics of included studies

Study 1	Derosiers, J., Noreau, L., Rochette, A., Carbonneau, H., Fontaine, L., Viscogliosi, C., et al. (2007). Effect of a home leisure education program after stroke: A randomized control trial.
Intervention investigated	Randomized controlled trial to evaluate the effect of a home leisure education program with an emphasis on empowerment for people with stroke. Experimental participants (33) received the leisure education program at home. Leisure education program was divided into 3 components: leisure awareness, self-awareness, and competency development.
Comparison intervention	Control participants (29) were visited at home for a similar number of visits but the topics discussed were unrelated to leisure.
Outcomes used	Leisure related outcomes were leisure participation (time budget technique) and satisfaction related to this participation (Leisure Satisfaction Scale). Other out come measures included well-being (General Well-Being Schedule) and depressive symptoms (Center for Epidemiological Studies Depression Scale).
Findings	Found that an empowerment-focused home leisure education program has a positive effect on leisure satisfaction and participation, with benefits in mood in community-dwelling persons with stroke. After the leisure education, persons in the experimental group increased their participation in active leisure activities and were more satisfied with their leisure activities. The significant increase in time involved in active leisure activities in the experimental group tends to support the view that the leisure program stimulated people to enhance their leisure participation. After the program the experimental group presented fewer depressive symptoms.
Study Limitations	The reliability of the method of measurement of leisure duration and number of activities is in not known, thus random error may have reduced the responsiveness of this measure. There was a slight difference in the duration and frequency of the interventions between group because part of the intervention was in the community.
Study 2	Hartman-Maeir, A., Soroker, N., Ring, H., Avni, N., & Katz, N. (2007) Activities, participation and satisfaction one-year post stroke.
Intervention investigated	Current study was a follow-up one-year post onset of stroke cohort design aimed to evaluate the chronic consequences of stroke in terms of activity limitations, restricted participation, and

	dissatisfaction from life, and the relationship between these variables, in stroke survivors (N=56) living in the community one-year post onset. The data was collected by an experienced occupational therapist that gave the functional ADL and IADL assessments and interviewed each participant and caregiver in their home to compare reliability of results.
Comparison intervention	The control group used consisted of a cohort group was from a separate study that obtained a similar sample size of 61 healthy Israeli individuals to show the effects of aging as compared with the detrimental lasting effects of a stroke on activity level in the current study.
Outcomes used	BADL (Functional Independence Measure), IADL (IADLq), Work (interview questions), Leisure (Activity Card Sort), Satisfaction (Life Satisfaction Questionnaire), Emotional Status (Geriatric Depression Scale)
Findings	<p>A frequency analysis of the individual BADL activities of the FIM motor scale revealed that more than 90% of the subjects were completely independent in eating, toileting, and sphincter control, yet in all other activities (bathing, dressing and use of stairs) at least 25% of the sample required some assistance.</p> <p>In the domain of IADL, the majority of the subjects were dependent to some extent in all areas except for telephone use. High percentages of subjects required full assistance in shopping (52%), meal preparation (77%), housekeeping (70%), and laundry (82%).</p> <p>In the domain of work, only one subject of 39 individuals that were employed before their stroke returned to work.</p> <p>In the domain of leisure, the mean total activity level was 42.8%, indicating that on the average the stroke patients gave up 57.2% of their activities in these domains after their stroke. The highest level of activity was retained in the 'leisure low physical' area (59.7%) and the lowest in the 'leisure-high physical' area (25.7%).</p> <p>In life satisfaction, only 39% of the sample rated themselves as satisfied with 'life as a whole'. Satisfaction from family life, partner relationship and social contacts was relatively high, whereas satisfaction from domains of self-care, leisure and vocational situation was lower.</p> <p>Assessments of depression using the GDS revealed that 24% of the sample were not depressed, 45% scored in the 'suspected depression' range and 31% in the 'probable depression' range.</p>

	<p>Pearson correlation coefficients between overall life satisfaction scores and functional outcomes were, with the FIM scores representing BADL ($r=.32$, $p=0.015$), with IADL ($r=.48$, $p=.00$) and with ACS ($r=.57$, $p=.00$). These results show that the sense of satisfaction from life, as judged one year after stroke onset, is associated more strongly with the level of participation than with independence level in BADL. Also, a significantly negative correlation was found between satisfaction and GDS scores ($r=-.61$, $p=.00$).</p> <p>The findings in the study outline the importance of enabling participation in personally meaningful activities, in addition to the focus on depression, in order to improve life satisfaction.</p>
Study Limitations	<p>The study sample was relatively small and was selected from one rehabilitation center that may limit generalization of the findings. The use of a control group that was not part of the immediate study presents some limitations as far as comparison, their functional status was not accompanied with assessments/evaluations to validate their health status and the difference in time in which the two studies were completed may lead to further discrepancy in data results. Generalizability is limited due to the lack of representation in the sample with stroke, such as people with stroke living in other areas, people of different socioeconomic and cultural backgrounds, and people from other ethnicities</p>

Study 3	McKenna, K., Liddle, J., Brown, A., Lee, K., & Gustafsson, L. (2009). Comparison of time use, role participation and life satisfaction of older people after stroke with a sample without stroke.
Intervention investigated	Cross-sectional design aimed to measure time use, roles and life satisfaction of people following stroke 1-3 years previously ($N=23$) and to determine whether these differed from a comparable group without stroke.
Comparison intervention	The control group consisted of participants from a separate study with a larger sample size of 195 Australian older adults without stroke to show the effects of aging as compared with the detrimental lasting effects of a stroke on activity level in the current study.
Outcomes used	Time use (Activity Configuration), Role participation (The Role Checklist), Life satisfaction (Life Satisfaction Index-Z), Independence in BADL (The Physical Self Maintenance Scale), Independence in IADL (The Instrumental Activities of Daily Living Scale), and Depressive symptoms (The Center for Epidemiological Studies Depression Scale).
Findings	Results of the study support previous findings that participants

	with stroke are less likely to be completely independent is BADL and IADL, score lower on cognitive screens, and higher on depression measures than the sample without stroke. Results indicate that older adults with stroke spend significantly less time in sleep, IADL, and volunteer work, and significantly more time in solitary leisure and at home than people without stroke. The most common and valued roles for both samples were family member, friend, and home maintainer, which may be a reflection of the common values held within this age group. The participants in this study were less likely to have the current roles of hobbyist/amateur participant in organizations, volunteer, caregiver, or student because these are all roles that require a high level of community integration. In this study, both samples reported engaging in fewer roles than they did in the past, however, participants with stroke had relinquished more roles and were currently engaged in fewer roles than the sample without stroke. Results of this study also support the finding that the number of currently held roles influences life satisfaction.
Study Limitations	Study limitations include the convenience sampling method of recruitment of the participants because it was voluntary and those who responded may have done so because they are already actively involved in activities and roles, such that they may have an interest in the study research topic. The small sample size (N=26) may have affected the results and the large sample size of the non-stroke group (N=195) is so much larger therefore weighting the findings of the non-stroke group. Individual categorization of activities may have led to discrepancies due to the types of grouping that may have been reported, such that watching television for some participants may have been categorized as leisure while others may have categorized it as a solitary activity. Generalizability is limited due to the lack of representation in the sample with stroke, such as people with stroke living in other areas, people of different socioeconomic and cultural backgrounds, and people from other ethnicities.

Study 4	Amarshi, F., Artero, L., & Reid, D. (2006) Exploring social and leisure participation among stroke survivors: Part one and two.
Intervention investigated	In-depth interviews of 12 stroke survivors (<60, had stroke in past 10 years, living in home and spoke English) leisure and social activity participation post-stroke
Comparison intervention	N/A
Outcomes used	Four themes emerged from the data that were related to stroke survivors' social and leisure participation: it's a completely different life, what limits me from participating, what I need in order to participate, and continuing on with my life.
Findings	The stroke survivors in the current study experienced discontinuity when they spoke of physical and cognitive

	limitations to their participation, having to depend on others, the challenges with cost and transportation and psychological barriers to participation such as fear. Creating a sense of continuity stems from developing fit between the individual's limitations as well as their resources, such that a sense of continuity depends on ongoing support, fulfillment of certain roles and maintaining symbols that preserve identity in the face of change.
Study Limitations	Study limitations include that all participants in the study came from two stroke support groups located in the Greater Toronto area. As a result of already being members of a stroke support group, these individuals may have been more likely to have had greater support networks. In addition the participants studied were all retired, elderly individuals living in the community; therefore, the results of this study can only be transferred to the group interviewed and not the rest of the population.

Study 5	Carlson, G. E., Moller, A., & Blomstrand, C. (2009). Managing an everyday life of uncertainty-A qualitative study of coping in persons with mild stroke.
Intervention investigated	In-depth interviews of 18 stroke survivors (one- year post stroke admission, >75 at stroke onset, dually diagnosed with depression, post stroke fatigue, related cognitive and emotional problems) were chosen to investigate from the person's perspective how and why persons with mild stroke coped with their new life situation as they did during the first year after stroke.
Comparison intervention	N/A
Outcomes used	The core category was built up of three descriptive categories: individual concerns of coping, relational concerns of coping, and environmental conditions for coping, which shows a theoretical model of the dynamic process of the core category, striving to manage a life of uncertainty.
Findings	Central finding in the study was the complexity and variety of life situations with which the respondents had to cope. The respondents often were considered to have recovered 1-year post-stroke and thus faced expectations that they could not live up to. The core category that emerged from the interviews was 'striving to manage an everyday life of uncertainty' because there was uncertainty about symptoms and the new life, lack of preparation for living in the community and having to live within a social context where there is a lack of knowledge about invisible dysfunctions, and the overall uncertainty concerning recovery. Implications of this study is stated as demonstrating a need even after a mild stroke for a long-term perspective concerning rehabilitation and counseling interventions for both patients and their families.

Study Limitations	Generalizability is limited do to the recruitment of respondents representative of the younger subgroup of individuals with mild stroke and who are cohabitant with a partner. Therefore, results of this study can only be transferred to the group interviewed and not the rest of the population.
--------------------------	--

Articles Selected for Appraisal

- Amarshi, F., Artero, L., & Reid, D. (2006) Exploring social and leisure participation among stroke survivors: Part one and two. *International Journal of Therapy and Rehabilitation*, 13, 166-170 & 199-207
- Carlson, G. E., Moller, A., & Blomstrand, C. (2009). Managing an everyday life of uncertainty-A qualitative studt of coping in persons with mild stroke. *Disability and Rehabilitation*, 31, 773-782
- Derosiers, J., Noreau, L., Rochette, A., Carbonneau, H., Fontaine, L., Viscogliosi, C., et al. (2007). Effect of a home leisure education program after stroke: A randomized control trail. *Archives of Physical Medicine and Rehabilitation*, 88, 1095-1100.
- Hartman-Maeir, A., Soroker, N., Ring, H., Avni, N., & Katz, N. (2007) Activities, participation and satisfaction one-year post stroke. *Disability and Rehabilitation*, 29, 559-566.
- McKenna, K., Liddle, J., Brown, A., Lee, K., & Gustafsson, L. (2009). Comparison of time use, role participation and life satisfaction of older people after stroke with a sample without stroke. *Australian Occupational Therapy Journal*, 56, 177-188

References

- American Journal of Occupational Therapy (2008). Occupational therapy practice framework: Domain and process 2nd edition. *American Journal of Occupational Therapy*, 62, 630–632.
- The American Heart Association (2009). The U.S. centers for disease control and prevention stroke statistics update. Retrieved on November 11, 2009 from <http://www.strokecenter.org/patients/stats.htm>.